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What's Wrong w/ RAINBOW ?

Map Hue (spectral) \Rightarrow ORDER

NOT PERCEPTUAL

NOT OBVIOUSLY ORDERED

NOT LIGHTNESS ORDERED - often lightness iso
except in middle

Confusing

Obscuring (lack of luma means no way to see detail)

Misleading (lightness in center of scale)

Nominal - color separability (around wheel in perceptual space)
nameable colors *** (not in article)

~~ordinal~~

Ordinal - ordered, but not metric - or only showing relative

Color + Lightness

not just lightness because not absolute

On surfaces - needs to be iso-luminant (luma for shading/shape)

Interval / RA710 - contrast effects make absolute perception hard

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POYNTON

Intensity (measure power)

Luminance (Brightness - perceived)

radiant power * spectral sensitivity (approx brightness)

Lightness - linearized luminance

(so $\frac{1}{2} Y^*$ means half as bright perceptually)

COLOR FOR DESIGNERS

Cool vs. Warm

Vibrant vs. Calming

"Orange is associated with health and vitality"

"Orange is less in your face than red"

"Yellow is associated w/ happiness"

BREWER

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- FIND PROGRESSIONS OF COLOR

ORDERED SCALES

- SEQUENTIAL

- DIVERGING

Systematic Paths through perceptual color spaces

Color ^{Hue} for category

Lightness for ordered difference (value)

> How to separate?

NAMEABLE COLORS

RAINBOW SPECTRA \equiv IF DIVERGING

2 Variable schemes

SATURATION BY ITSELF IS HARD TO COMPARE

Assimilation

Simultaneous Contrast

↪ Contextual effects

PERCEPTUAL COLOR SYSTEMS

Spectral Order + Vertical is Lightness

CIE LAB RG/YB